

WHAT IS CLAIMED IS:

5

1. A method for changing wireless channels used in a communication between a base station and a mobile station, comprising the steps of:

10 a) measuring an amount of information transferred between the base station and the mobile station;

15 b) comparing the measured amount of information with first and second threshold values corresponding to a transmission capability for a current wireless channel being used between the base station and the mobile station; and

20 c) changing the current wireless channel to the wireless channel with a higher transmission capability than that of the current wireless channel when the measured amount of information is above the first threshold value and changing the current wireless channel to the wireless channel with a lower transmission capability than that of the current wireless channel when the measured amount of information is below the second threshold value.

30

2. The method for changing wireless channels as claimed in claim 1, wherein an amount of information yet to be transmitted is measured as said amount of information to be compared with the first threshold value, and

35

wherein an amount of information currently being transmitted is measured as said amount of information to be compared with the second threshold

value.

5 3. The method for changing wireless
channels as claimed in claim 1, wherein said step a)
consists of measuring the amount of information yet
to be transmitted.

10

15 4. The method for changing wireless
channels as claimed in claim 1, wherein said step a)
consists of measuring the amount of information that
has been transmitted during a predetermined time
period.

20

25 5. The method for changing wireless
channels as claimed in claim 1, wherein
the current wireless channel is changed to
the wireless channel with the higher transmission
capability than the current wireless channel only if
the measured amount of information has been
successively above the first threshold value over a
predetermined count of times.

30

35 6. The method for changing wireless
channels as claimed in claim 1, wherein
the current wireless channel is changed to
the wireless channel with the lower transmission

capability than the current wireless channel only if the measured information amount has been below the second threshold value successively over a predetermined count of times.

5

7. The method for changing wireless
10 channels as claimed in claim 1, wherein
the current wireless channel is changed to the wireless channel with the higher transmission capability than the current wireless channel only if the measured amount of information has been
15 successively above the first threshold value over a predetermined count of times, and

the current wireless channel is changed to the wireless channel with the lower transmission capability than the current wireless channel only if
20 the measured information amount has been successively below the second threshold value over a further predetermined count of times.

25

8. The method for changing wireless
channels as claimed in claim 1, wherein said step c),
before changing the wireless channel, includes the
30 steps of:

determining whether the wireless channel intended to be changed over can be assigned to the communication;

when it is determined that this is not the
35 case, determining again whether the intended wireless channel can be assigned to the communication, after a predetermined time period;

and

when it is determined this is the case,
changing the current wireless channel to the
intended wireless channel.

5

9. The method for changing wireless
10 channels as claimed in claim 1, wherein said step c),
before changing the wireless channel, includes the
steps of:

determining whether the wireless channel
intended to be changed over can be assigned to the
15 communication;

when it is determined that this is not the
case, entering an assignment request indicating
changeover to the intended wireless channel into the
base station and again determining whether the
20 intended wireless channel can be assigned to the
communication in order of the entered assignment
request; and

when it is determined that this is the
case, changing the current wireless channel to the
25 intended wireless channel.

30 10. The method for changing wireless
channels as claimed in claim 1, wherein said step c)
includes the steps of:

when at least one of an upper limit and a
lower limit for a required transmission capability
35 is set, determining whether the transmission
capability of the intended wireless channel is
either above the upper limit or below the lower

limit; and

when it is determined that the transmission capability of the intended wireless channel is above the upper limit or below the lower
5 limit, disabling to change the current wireless channel to the intended wireless channel.

10

11. The method for changing wireless channels as claimed in claim 1, wherein said step c) includes the steps of:

when a lower limit of a required
15 transmission capability is set, determining whether the transmission capability of the intended wireless channel is below the lower limit;

when it is determined that this is the case, establishing the wireless channel shared by
20 some communications between the base station and each of the plurality of the mobile stations, while reserving the current wireless channel.

25

12. A mobile communication system including a plurality of base stations and a mobile station communicating with the base station through
30 a wireless channel, comprising:

an information amount measuring part that measures an amount of information, transferred between the base station and the mobile station;

a comparator part which compares the
35 measured amount of information with first and second threshold values predetermined for a current wireless channel being used by the base and mobile

stations;

5 a wireless channel changeover part which
changes the current wireless channel to a wireless
channel with a transmission capability higher than
that of the current wireless channel when the
measured amount of information is above the first
threshold value and changes the current wireless
channel to a wireless channel with a transmission
10 capability lower than that of the current wireless
channel when the measured amount of information is
below the second threshold value.

15

13. The mobile communication system as
claimed in claim 11, wherein said information amount
measuring part measures an amount of information yet
to be transmitted is measured as said amount of
20 information to be compared with the first threshold
value, and

wherein said information amount measuring
part measures an amount of information currently
being transmitted as said amount of information to
25 be compared with the second threshold value.

30

14. The mobile communication system as
claimed in claim 12, wherein said information amount
measuring part is arranged to measure the amount of
information yet to be transmitted.

35

15. The mobile communication system as
claimed in claim 12, wherein said information amount
measuring part is arranged to measure the amount of
information that has been transmitted during a
5 predetermined time period.

10 16. The mobile communication system as
claimed in claim 12, wherein said wireless channel
changeover part changes the current wireless channel
to the wireless channel with the higher transmission
capability than the current wireless channel only if
15 the measured amount of information has been
successively above the first threshold value over a
predetermined count of times.

20 17. The mobile communication system as
claimed in claim 12, wherein said wireless channel
changeover part changes the current wireless channel
25 to the wireless channel with the lower transmission
capability than the current wireless channel only if
the measured information amount has been below the
second threshold value successively over a
predetermined count of times.

30 18. The mobile communication system as
35 claimed in claim 12, wherein said wireless channel
changeover part changes the current wireless channel
to the wireless channel with the higher transmission

capability than the current wireless channel only if the measured amount of information has been successively above the first threshold value over a predetermined count of times, and

5 wherein said wireless channel changeover part changes the current wireless channel to the wireless channel with the lower transmission capability than the current wireless channel only if the measured information amount has been
10 successively below the second threshold value over a further predetermined count of times.

15

19. The mobile communication system as claimed in claim 12, further comprising:

 an assignment ability estimating part that determines whether the wireless channel intended to
20 be changed over can be assigned to the communication, wherein when said assignment ability estimating part determines that this is not the case, said assignment ability estimating part determines again whether the intended wireless channel can be
25 assigned to the communication, after a predetermined time period, and

 wherein said wireless channel changeover part changes the current wireless channel to the intended wireless channel, when said assignment
30 ability estimating part has determined that this is the case.

35

20. The mobile communication system as claimed in claim 12, further comprising:

an assignment ability estimating part which determines whether the wireless channel intended to be changed over can be assigned to the communication, and

5 an assignment request entering part which enters an assignment request indicating changeover to the intended wireless channel, when said assignment ability estimating part determines that the intended wireless channel is not able to be
10 assigned,

wherein said assignment ability estimating part determines again whether the intended wireless channel can be assigned to the communication in order of the entered assignment request, when said
15 assignment ability estimating part determines that the intended wireless channel is not able to be assigned, and

wherein said wireless channel changeover part changes the current wireless channel to the
20 intended wireless channel, when said assignment ability estimating part has determined that this is the case.

25

21. The mobile communication system as claimed in claim 12, further comprising:

a transmission capability determining part
30 that determines whether a transmission capability of the wireless channel intended to be changed over is either above an upper limit or below a lower limit for a required transmission capability,

wherein said wireless channel changeover
35 part disables for changing the current wireless channel to the intended wireless channel, when it is determined that the transmission capability of the

intended wireless channel is above the upper limit or below the lower limit.

5

22. The mobile communication system as claimed in claim 12, further comprising:

10 a transmission capability determining part that determines whether a transmission capability of the wireless channel intended to be changed over is below a lower limit for a required transmission capability,

15 wherein said wireless channel changeover part establishes the wireless channel shared by some communications between the base station and each of the plurality of the mobile stations while reserving the current wireless channel, when it is determined that the transmission capability of the intended
20 wireless channel is below the lower limit.

25 23. A base station in a mobile communication system including a plurality of base stations and a mobile station communicating with the base station through a wireless channel, comprising:

30 an information amount measuring part that measures an amount of information transferred between the base station and the mobile station;

a comparator part which compares the measured amount of information with first and second threshold values predetermined for a current
35 wireless channel being used by the base and mobile stations;

a wireless channel changeover part which

changes the current wireless channel to a wireless channel with a transmission capability higher than that of the current wireless channel when the measured amount of information is above the first threshold value and changes the current wireless channel to a wireless channel with a transmission capability lower than that of the current wireless channel when the measured amount of information is below the second threshold value.

10

24. A mobile station communicating with a base station through a wireless channel in a mobile communication system including a plurality of base stations, comprising:

an information amount measuring part that measures an amount of information, transferred between the base station and the mobile station;

a comparator part which compares the measured amount of information with first and second threshold values predetermined for a current wireless channel being used by the base and mobile stations;

a wireless channel changeover part which changes the current wireless channel to a wireless channel with a transmission capability higher than that of the current wireless channel when the measured amount of information is above the first threshold value and changes the current wireless channel to a wireless channel with a transmission capability lower than that of the current wireless channel when the measured amount of information is below the second threshold value.